



US007217808B2

(12) **United States Patent**
Hinuma et al.

(10) **Patent No.:** **US 7,217,808 B2**

(45) **Date of Patent:** **May 15, 2007**

(54) **RFRP-3 AND DNA THEREOF**

(75) Inventors: **Shuji Hinuma**, Tsukuba (JP); **Hiromi Yoshida**, Ishige-machi (JP); **Yugo Habata**, Tsukuba (JP); **Masaki Hosoya**, Tsuchiura (JP); **Chieko Kitada**, Sakai (JP)

(73) Assignee: **Takeda Pharmaceutical Company, Ltd.**, Osaka (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **11/223,294**

(22) Filed: **Sep. 9, 2005**

(65) **Prior Publication Data**

US 2006/0035332 A1 Feb. 16, 2006

Related U.S. Application Data

(62) Division of application No. 10/487,634, filed as application No. PCT/JP02/08466 on Aug. 22, 2002, now Pat. No. 7,041,789.

(30) **Foreign Application Priority Data**

Aug. 24, 2001 (JP) 2001-254826

(51) **Int. Cl.**

C07H 21/04 (2006.01)
C07K 14/00 (2006.01)
C12P 21/06 (2006.01)

(52) **U.S. Cl.** **536/23.1**; 530/350; 435/69.1

(58) **Field of Classification Search** 530/350; 514/12; 435/7.1, 6, 69.1; 536/23.1

See application file for complete search history.

(56) **References Cited**

FOREIGN PATENT DOCUMENTS

WO	WO 00/29441	5/2000
WO	WO 01/66134 A1	9/2001
WO	WO 02/46405 A1	6/2002

OTHER PUBLICATIONS

S. Hinuma, et al., "New Neuropeptides Containing Carboxy-terminal RFamide and their Receptor in Mammals", *Nature Cell Biology*, (2000), pp. 703-708, vol. 2.

Q. Liu, et al., "Identification and Characterization of Novel Mammalian Neuropeptide FF-like Peptides that Attenuate Morphine-induced Antinociception", *The Journal of Biological Chemistry*, (2001), pp. 36961-36969, vol. 276, No. 40.

Primary Examiner—Robert B. Mondesi

(74) *Attorney, Agent, or Firm*—David G. Conlin, Esq.; Gregory B. Butler, Esq.; Edwards Angell Palmer & Dodge, LLP

(57) **ABSTRACT**

The RFRP-3 peptide of the present invention which is an agent for promoting prolactin secretion is useful as a prophylactic and/or therapeutic agent for various diseases associated with prolactin secretion, such as hypooovarianism, seminal vesicle hypoplasia, menopausal syndrome and hypothyroidism.

6 Claims, 21 Drawing Sheets